Amendments to the Claims:

1.   (Currently Amended)   A ~~controlling~~ method for controlling data transmission, comprising:

    providing a system bus ~~for connecting~~ that is configured to connect both a first transmission channel and a second transmission channel ~~with~~ to a command processor;

    adjusting a ~~transmitting~~ transmission direction of the ~~said~~ system bus according to a ~~transmitting~~ transmission direction of the ~~said~~ second transmission channel; ~~and~~

    performing data processing procedures on data of the ~~said~~ second transmission channel according to the transmission ~~said transmitting~~ direction of the ~~said~~ second transmission channel; and ~~, wherein~~

    performing at least some ~~of said~~ data processing procedures on data of the ~~said~~ first transmission channel ~~will occur during~~ while adjusting the ~~said~~ ~~transmitting~~ transmission direction of the ~~said~~ system bus ~~and the start of said data processing procedures of said second transmission channel,~~ wherein the at least some data processing procedures on data of the first transmission channel includes at least one of:

    caching data of the first transmission channel while transmitting data from the first transmission channel to the system bus;

    decoding data of the first transmission channel while transmitting data from the first transmission channel to the system bus;

    encoding data of the second transmission channel while transmitting data from the system bus to the second transmission channel; or

    storing data of the second transmission channel to a storage medium while transmitting data from the system bus to the second transmission channel.

2.   (Currently Amended) The method ~~as recited in~~ of claim 1, wherein the performing at least some ~~said parts of said~~ data processing procedures on data of the ~~said~~ first transmission channel ~~comprise~~ includes:

caching and decoding ~~said~~ data ~~in said~~ of the first transmission channel while ~~the~~ transmitting data ~~is transmitted~~ from the ~~said~~ first transmission channel to the ~~said~~ system bus.

3.   (Currently Amended) The method ~~as recited in~~ of claim 1, wherein the performing at least some ~~said parts of said~~ data processing procedures on data of the ~~said~~ first transmission channel ~~comprise~~ includes:

encoding and storing ~~said~~ data of the second transmission channel to a storage media while transmitting ~~the~~ data ~~is transmitted~~ from the ~~said~~ system bus to the second ~~said first~~ transmission channel.

4.   (Currently Amended) A method for controlling a ~~caching location and a processing timing of data in a~~ data transmission channel module, comprising:

determining a identifying an active data transmission channel from a first transmission channel and a second transmission channel of the ~~said~~ data transmission channel module according to a command issued by a command processor, and

performing ~~parts of~~ at least some processing ~~procedure~~ procedures on data of a the first transmission channel ~~of said data transmission channel module~~ ~~for~~ during a time period ~~when a~~ in which the second transmission channel ~~of said data transmission channel module is using~~ utilizes a common ~~transmitting~~ transmission path, including:

utilizing the first transmission channel to cache data from a first source while a first command is issued by the command processor; and

utilizing the second transmission channel to cache data from a second source while a second command is issued by the command

processor, wherein the first command is at least one of a read
command or a write command, and wherein the second command
is at least one of a read command or a write command.

5.   (Currently Amended) The method ~~as recited in~~ of claim 4, ~~comprising:
utilizing said first transmission channel for caching a first source data when a first
command issued by said command processor is read; and
utilizing said second transmission channel for caching a second source data
when a second command issued by said command processor is write~~,
wherein the ~~said~~ second command is ~~performed~~ issued after the ~~said~~ first
command, and wherein the first command is a read command and the
second command is a write command.

6.   (Currently Amended) The method ~~as recited in claim 5~~ of claim 4, further
comprising:
utilizing the ~~said~~ first transmission channel ~~for caching~~ to cache a third source
data ~~when~~ if a third command is issued by the ~~said~~ command processor
~~is read~~, wherein the ~~said~~ third command is ~~performed~~ a read command
that is issued after the ~~said~~ second command, ~~and said third source data
caching follows said first source data caching on said first transmission
channel~~.

7.   (Currently Amended) The method ~~as recited in claim 5~~ of claim 4, further
comprising:
utilizing the ~~said~~ second transmission channel ~~for caching~~ to cache a third source
data ~~when~~ if a third command is issued by the ~~said~~ command processor ~~is
write~~, wherein the ~~said~~ third command is ~~performed~~ a write command that
is issued after the ~~said~~ second command, ~~and said third source data~~

~~caching follows said second source data caching on said second transmission channel.~~

8.   (Currently Amended) The method ~~as recited in~~ of claim 4 ~~comprising: utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is read; and utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is read~~, wherein the ~~said~~ second command is issued ~~performed~~ after the ~~said~~ first command, and wherein the first command is a read command and the second command is a read command.

9.   (Currently Amended) The method ~~as recited in~~ of claim 4 ~~comprising: utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is write; and utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is read~~, wherein the ~~said~~ second command is issued ~~performed~~ after the ~~said~~ first command, and wherein the first command is a write command and the second command is a read command.

10.   (Currently Amended) The method ~~as recited in~~ of claim 9, further comprising:
utilizing the ~~said~~ first transmission channel ~~for caching~~ to cache data from a third source data ~~when~~ while a third command issued by the ~~said~~ command processor ~~is write~~, wherein the ~~said~~ third command is a write command that is issued ~~performed~~ after the ~~said~~ second command, ~~and said third source data caching follows said first source data caching on said first transmission channel.~~

11.   (Currently Amended) The method ~~as recited in~~ of claim 4 ~~comprising:~~

~~utilizing said first transmission channel for caching a first source data when a first~~
~~command issued by said command processor is write; and~~

~~utilizing said second transmission channel for caching a second source data~~
~~when a second command issued by said command processor is write,~~
wherein the ~~said~~ second command is issued ~~performed~~ after the ~~said~~ first
command, and wherein the first command is a write command and the
second command is a write command.

12.   (Currently Amended) A data transmission channel module for an
optoelectronic system, comprising:

a first transmission channel configured to be controlled with ~~bounded by~~ a first
set ~~pair~~ of pipe indices to cache and transmit ~~for caching and transmitting~~
data with a first processing procedure ~~procedures;~~ and

a second transmission channel configured to be controlled with ~~bounded by~~ a
second set ~~pair~~ of pipe indices to cache and transmit ~~for caching and~~
~~transmitting~~ data with a second processing ~~procedures~~ procedure,
wherein if the first processing procedure includes data decoding, the set of
pipe indices comprise:

a write pipe index configured to indicate an amount of cached data in a
transmission channel corresponding to the first processing
procedure;

a decode pipe index configured to indicate an amount of decoded data;
and

a host-pipe sector data send index configured to indicate an amount of
data transmitted from the transmission channel corresponding to a
command processor; ~~and~~

~~a bus coupling said first transmission channel and said second transmission~~
~~channel to a command processor for data transmission.~~

13.   (Original) The device as recited in of claim 12, wherein the said optoelectronic system is a DVD Player or a DVD Recorder.

14.   (Cancelled)

15.   (Currently Amended) The device as recited in of claim 12, wherein the said first transmission channel and the said-second transmission channel are coupled to a channel CODEC for data encoding and decoding that is configured to decode data of the first transmission channel and to encode data of the second transmission channel.

16.   (Canceled)

17.   (Currently Amended) The device as recited in of claim 12, wherein if the said first processing procedure includes procedures comprising a data encoding, the said pair set of pipe indices comprising:

   a host-pipe sector data get index for indicating configured to indicate an amount of data sent from a command processor to a corresponding transmission channel;

   an encode pipe index for indicating configured to indicate an amount of encoded data; and

   a record pipe index for indicating configured to indicate an amount of encoded data sent transmitted from the corresponding transmission channel to a storage medium.

18.   (New) The device of claim 12, further comprising a bus configured to couple both the first transmission channel and the second transmission channel to a command processor to enable data transmission between the first transmission channel and the command processor and between the second transmission channel and the command processor.

19.   (New) The method of claim 1, wherein performing at least some data processing procedures on data of the first transmission channel while adjusting the transmission direction of the system bus includes:

performing at least some data processing procedures on data of the first transmission channel while adjusting the transmission direction of the system bus and starting at least some data processing procedures on data of the second transmission channel.